



PATENT  
0171-1021P

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: WATANABE, Takeru et al Conf.: 9893

Appl. No.: 10/671,791 Group: UNASSIGNED

Filed: September 29, 2003 Examiner: UNASSIGNED

For: NOVEL TERTIARY (METH)ACRYLATES HAVING  
LACTONE STRUCTURE, POLYMERS, RESIST  
COMPOSITIONS AND PATTERNING PROCESS

PETITION  
IN RESPONSE TO  
NOTICE TO FILE CORRECTED APPLICATION PAPERS

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

JUL 12 2004

Sir:

On May 20, 2004, the Commissioner mailed a document entitled "Notice to File Corrected Application Papers" (the notice) alleging failure of receipt of pages 45-47 of the application as filed. A copy of the notice is attached hereto as Exhibit A.

The pages which the Commissioner alleges are missing were in fact filed in the PTO mailroom on September 29, 2003, as shown by the mailroom date stamp on the postcard receipt copy attached as Exhibit B. The attention of the Commissioner is respectfully invited to the fact that Exhibit B shows that 47 pages were filed.

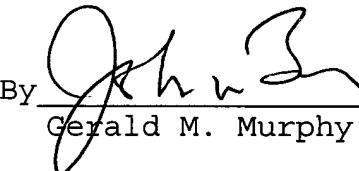
In order to advance prosecution, clean copies of those pages alleged to be missing are also submitted herewith.

A check in the amount of ONE-HUNDRED-THIRTY and no/100 DOLLARS (\$130.00) is attached to cover the fee required by 37 CFR 1.17(h). This fee should be refunded since the papers alleged to be missing were in fact submitted.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment or any refund to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By  #32,881  
Gerald M. Murphy, Jr., #28,977

P.O. Box 747  
Falls Church, VA 22040-0747  
(703) 205-8000

GMM/DRM/ *or/m* /drm  
0171-1021P



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

*[Handwritten signature]*

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/671,791	09/29/2003	Takeru Watanabe	0171-1021P



02292  
 BIRCH STEWART KOLASCH & BIRCH  
 PO BOX 747  
 FALLS CHURCH, VA 22040-0747

**CONFIRMATION NO. 9893**  
**FORMALITIES LETTER**  
  
 \*OC000000012720406\*

Date Mailed: 05/20/2004

## NOTICE TO FILE CORRECTED APPLICATION PAPERS

### *Filing Date Granted*

An application number and filing date have been accorded to this application. The application is informal since it does not comply with the regulations for the reason(s) indicated below. Applicant is given TWO MONTHS from the date of this Notice within which to correct the informalities indicated below. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

The required item(s) identified below must be timely submitted to avoid abandonment:

- An abstract of the technical disclosure not exceeding 150 words in length and commencing on a separate sheet in compliance with 37 CFR 1.72(b) is required. An abstract was not provided for this application.

The following item(s) appear to have been omitted from the application:

- Page(s) 45-47 of the specification (description and claims).

I. Should applicant contend that the above-noted omitted item(s) was in fact deposited in the U.S. Patent and Trademark Office (USPTO) with the nonprovisional application papers, a copy of this Notice and a petition (and \$130.00 petition fee (37 CFR 1.17(h))) with evidence of such deposit must be filed within TWO MONTHS of the date of this Notice. The petition fee will be refunded if it is determined that the item(s) was received by the USPTO.

II. Should applicant desire to supply the omitted item(s) and accept the date that such omitted item(s) was filed in the USPTO as the filing date of the above-identified application, a copy of this Notice, the omitted item(s) (with a supplemental oath or declaration in compliance with 37 CFR 1.63 and 1.64 referring to such items), and a petition under 37 CFR 1.182 (with the \$130.00 petition fee (37 CFR 1.17(h))) requesting the later filing date must be filed within TWO MONTHS of the date of this Notice.

Applicant is advised that generally the filing fee required for an application is the filing fee in effect on the filing date accorded the application and that payment of the requisite basic filing fee on a date later than the filing date of the application requires payment of a surcharge (37 CFR 1.16(e)). To avoid processing delays and payment of a surcharge, applicant should submit any balance due for the requisite filing fee based on the later filing date being requested when submitting the omitted items(s) and the petition (and petition fee) requesting the later filing date.

III. The failure to file a petition (and petition fee) under the above options (I) or (II) within TWO MONTHS of the date of this Notice (37 CFR 1.181(f)) will be treated as a constructive acceptance by the applicant of the

application as deposited in the USPTO. **THIS TWO MONTH PERIOD IS NOT EXTENDABLE UNDER 37 CFR 1.136(a) or (b).** In the absence of a timely filed petition in reply to this Notice, the application will maintain a filing date as of the date of deposit of the application papers in the USPTO, and original application papers (i.e., the original disclosure of the invention) will include only those application papers present in the USPTO on the date of deposit.

In the event that applicant elects not to take action pursuant to options (I) or (II) above (thereby constructively electing option (III)), amendment of the specification to renumber the pages consecutively and cancel incomplete sentences caused by any omitted page(s), and/or amendment of the specification to cancel all references to any omitted drawing(s), relabel the drawing figures to be numbered consecutively (if necessary), and correct the references in the specification to the drawing figures to correspond with any relabeled drawing figures, is required. A copy of the drawing figures showing the proposed changes in red ink should accompany with any drawing changes. Such amendment and/or correction to the drawing figures, if necessary, should be by way of preliminary amendment submitted prior to the first Office action to avoid delays in the prosecution of the application.

Replies should be mailed to: Mail Stop Missing Parts  
Commissioner for Patents  
P.O. Box 1450  
Alexandria VA 22313-1450

---

*A copy of this notice **MUST** be returned with the reply.*

Customer Service Center

Initial Patent Examination Division (703) 308-1202

PART 2 - COPY TO BE RETURNED WITH RESPONSE



BEST AVAILABLE COPY



Papers Filed herewith on: September 29, 2003

DOCKET NO.: 0171-1021D

ATTY: GMM

APPLICANT(S): Yatanabe, Takeo et al

USSN: NEW FILED: 9-29-03

PATNO.: \_\_\_\_\_

New Application with Transmittal Letter  
 Utility    Design    CIP    PCT    Provisional  
 Filing Under 37 CFR 1.53(b)    CONT    DIV  
 Filing Under 37 CFR 1.53(d) (CPA)  
 Specification Consisting of: 47 pages  
 Combined Declaration & Power of Attorney  
 Assignment / Cover Letter  
 Letter to Official Draftsman  
 Drawings \_\_\_\_\_ Sheets    Formal    Informal    Red-Ink  
 Completion of Filing Requirements, PCT/DO/EO/905  
or PTO-1533 and Executed Declaration  
 Priority Document(s) / Cover Letter, No. Doc. 1  
 Amendment: \_\_\_\_\_  
     Transmt Ltr    Large Entity    Small Entity  
 Response  
 Information Discl Stmtnt. PTO-1449(s) 5 doc(s)  
 Notice of Appeal    Appeal Brief  
 Issue Fee Transmittal  
 FEES: \$ 790.00  
 Letter: 31109 U.S. PTO  
 Other: 10/671791

DOCKET NO.

0171-1021



Receipt is hereby acknowledged of the papers filed as indicated in connection with the above identified case.

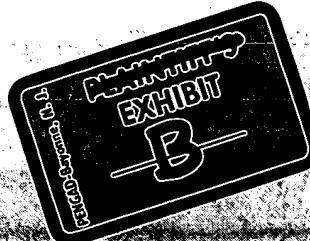
COMMISSIONER OF PATENTS AND TRADEMARKS

Due Date: 9-30-03

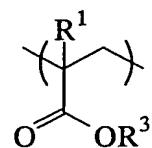
Handcarry: \_\_\_\_\_

592009

BEST AVAILABLE COPY



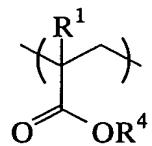
3. The polymer of claim 2, further comprising recurring units of at least one type having the general formula (2a):



(2a)

wherein R¹ is hydrogen or methyl, and R³ is a tertiary alkyl group of 4 to 20 carbon atoms which may contain a hydroxyl group, carbonyl group, ester bond or ether bond.

4. The polymer of claim 3, further comprising recurring units of at least one type having the general formula (3a):



10

(3a)

wherein R¹ is hydrogen or methyl, and R⁴ is an alkyl group of 2 to 20 carbon atoms which may contain a hydroxyl group, carbonyl group, ester bond, ether bond or cyano group.

15 5. The polymer of claim 2 wherein the recurring units of formula (1a) are present in a molar fraction of at least 5%.

6. A resist composition comprising the polymer of claim 2.

20 7. A resist composition comprising  
 (A) the polymer of claim 2,  
 (B) a photoacid generator, and  
 (C) an organic solvent.

8. A resist composition comprising  
(A) the polymer of claim 2,  
(B) a photoacid generator,  
(C) an organic solvent, and  
5 (D) a basic compound.

9. A process for forming a resist pattern comprising the steps of:

10 applying the resist composition of claim 6 onto a substrate to form a coating,

heat treating the coating and then exposing it to high-energy radiation having a wavelength of up to 300 nm or electron beams through a photomask, and

15 heat treating the exposed coating and developing it with a developer.

ABSTRACT

Novel tertiary (meth)acrylate compounds having a  
5 lactone structure are polymerizable into polymers having  
improved transparency, especially at the exposure wavelength  
of an excimer laser and dry etching resistance. Resist  
compositions comprising the polymers are sensitive to  
high-energy radiation, have a high resolution, and lend  
10 themselves to micropatterning with electron beams or deep-UV  
rays.